[This is not an article, chapter, of conference paper!]

Motivation for return to work and actual return to work among people on long-term sick leave due to pain syndrome or mental health conditions.

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Abstract

Purpose

The purpose of this study was to investigate associations between motivation for return to work (RTW) and RTW, or increased employability among people on long-term sick leave.

Materials and methods

A total of 427 people on long-term sick leave (mean=7.9 years) due to pain syndrome or mild to moderate mental health conditions participated in a vocational rehabilitation programme after being informed that they would lose their sickness insurance benefits. The participants' motivation for RTW was measured at baseline. At 12-month follow-up, change in the type of reimbursement between baseline and at present was assessed and used to categorise outcomes as: "decreased work and employability", "unchanged", "increased employability" and "increased work". Associations between baseline motivation and RTW outcomes were analysed using logistic and multinomial regression models.

Results

Motivation for RTW at baseline was associated with RTW or increased employability at 12-month follow-up in the logistic regression model adjusting for potential confounders, (OR 2.44, 95% CI 1.25–4.78).

Conclusion

The results suggest that motivation for RTW at baseline was associated with actual chances of RTW or increased employability in people on long-term sick leave due to pain syndrome or mild to moderate mental health conditions.

Keywords

Sick leave, motivation, return to work, sickness insurance, insurance medicine, public employment service, self-determination theory

Implication for rehabilitation

Motivation for RTW seems to increase the chances of RTW or increased employability in people on sick leave due to pain syndrome or mild to moderate mental health conditions.

Motivation for RTW should be considered in vocational rehabilitation.

Methods to assess and strengthen motivation for RTW should be developed and evaluated as a means to increase chances of RTW in vocational rehabilitation programmes.

Introduction

The term motivation is frequently used in clinical practice in the rehabilitation of people on sick leave as a means to explain whether an individual has an innate desire to return to work (RTW). The importance of motivation has been insufficiently investigated, but there are studies indicating that both RTW expectation and motivation to RTW predict work ability in chronic musculoskeletal and mental health conditions. [1, 2, 3, 4, 5, 6]. Effective methods to influence motivation for RTW remains to be established [7].

The word “motivation” is a part of everyday speech as well as a concept used in vocational rehabilitation. Motivation is a theoretical construct used to explain behaviour. It represents the reasons for people’s actions, desires and needs. A common definition of motivation is, “the force that energizes, directs, and sustains behaviour” [8]. Reviews of the scientific literature describe more than 20 different theories and models of motivation plus subgroups [8, 9]. The self-determination theory (SDT) has been developed in recent decades and has empirical support in work motivation research, as well as in other research fields such as healthcare and education [10, 11]. SDT is a macro-theory of human motivation and personality, concerning people’s inherent growth tendencies and their innate psychological needs [12]. Human beings can be proactive and engaged or alternatively passive and

alienated, largely as a function of the social conditions in which they develop and function.

Accordingly, research guided by SDT has focused on the social-contextual conditions that facilitate rather than prevent the natural processes of self-motivation and healthy psychological development [13]. Specifically, factors have been examined that enhance rather than undermine intrinsic motivation, self-regulation and well-being. The findings have led to the postulate of three innate psychological needs – competence, autonomy and relatedness – which, when satisfied, yield enhanced self-motivation and mental health and when thwarted lead to diminished motivation and well-being [13].

Mental health disorders and pain syndromes are the dominant causes of long-term sickness absence in Sweden [14]. Swedish authorities have introduced several initiatives to improve the vocational rehabilitation of people on sick leave due to such illnesses. Some are economic incentives for county councils [15], while others are changes in regulations and rules [16, 17]. In 2008 a time limit was introduced for obtaining sickness benefits from the Swedish public sickness insurance system. The aim with the time limit was to reduce the use of sickness insurance in favour of employment insurance, with the intention to increase competitive employment among those on long-term sick leave. Accordingly, persons with long-term sickness absence from the labour market (more than 12 months) lost their sickness compensation and were transferred to the Swedish Public Employment Service (SPES) for a three-month period of work ability assessment [17]. After a three-month re-evaluation programme, people with persisting health problems could be entitled to receive sickness benefits again if a physician certified work impairment due to a medical diagnosis. The time limit in the sickness insurance system was abolished in February 2016.

The participants of this study had very long periods of sick leave and lost their sickness insurance benefits due to this time limit [17]. There is scant evidence for the favourable effects of rehabilitation on RTW [18, 19, 20]. To the best of our knowledge, there are no studies on the association between

motivation for RTW and actual RTW after vocational rehabilitation interventions. The purpose of the study was to study associations between motivation for RTW at baseline, and RTW or increased employability. We hypothesised that motivation for RTW is associated with increased chances of RTW or improved employability at 12-month follow-up.

Materials and methods

Study design

We used pooled data from two similar and consecutively performed randomised controlled rehabilitation intervention studies. We treated all participants, both in the intervention groups and in the control groups, as one cohort in a longitudinal design [21, 22]. Our analyses do not assess the effect of the interventions, but focus on the impact of motivation on RTW.

Settings and participants

All participants in the intervention studies were about to lose their sickness benefits due to the new time limit in sickness insurance. In total 1,331 individuals were identified as eligible to participate in the two vocational rehabilitation interventions, Vitalis 1 (only women) or Vitalis 2 (women and men) [23, 24], in the county of Uppsala by the Swedish Social Insurance Agency (SSIA) during the inclusion period, June 2010 to December 2012. Of those invited, 473 persons did not respond to a mailed invitation to participate, and 418 persons did not meet the inclusion criteria (on sick leave due to pain syndrome or mild to moderate mental health conditions, and aged between 20 and 64 years) or met exclusion criteria (suicidal risk, ongoing alcohol/substance abuse, major mental disorder, ongoing psychotherapy or other structured vocational rehabilitation programme) [23, 24]. In addition, 13 persons were excluded because they were contacted before the study was formally approved by the ethics committee. Thus, the participants in the intervention studies consisted of 427 persons, 401 women and 26 men. The sample in the present study of the effect of motivation on RTW consisted of

those 227 intervention participants who responded to both the baseline question of motivation and the 12-month follow-up questionnaire of type of reimbursement (figure 1).

Insert figure 1 about here

The participants were randomly allocated to one of three interventions (two in Vitalis 1 and one in Vitalis 2) or to a control group condition. After the randomisation procedure, the participants filled in the baseline questionnaire containing a question on motivation for RTW. The participants knew that they were going to lose their sickness benefits when they answered the questionnaire, one to four months before they actually lost them. A description of the intervention groups, the content of the vocational rehabilitation programmes and analyses of treatment effects in Vitalis 1 have been reported in previous publications [23, 24]. All participants were subjected to an assessment at SPES to evaluate their work capacity. Figure 2 illustrates the time points of participant enrolment and assessments in relation to rehabilitation procedures in the intervention studies. At 12 months from baseline, a follow-up measurement was made by a questionnaire that was mailed to the participants. One reminder was sent by postal mail to those who did not return the questionnaire (figure 2).

Insert figure 2 about here

Variables

The independent variable “motivation” was assessed in the baseline questionnaire as the degree of agreement with the statement, “I am motivated to return to work” with response options, “agree strongly”, “agree somewhat”, “neither agree nor disagree”, “disagree somewhat”, and “disagree strongly”. The answers were dichotomised to “being motivated to RTW” if agreeing somewhat or completely to RTW, and “being less or not motivated to RTW” if strongly disagreeing, disagreeing or neither disagreeing nor agreeing to RTW.

The dependent variable was categorised according to changes in reimbursement. Reimbursement could come as wages from an employer, unemployment compensation from SPES and sickness benefits from SSIA. Reimbursement was specified as a percentage of full-time at baseline and at 12 months. Data on both reimbursement at baseline and at 12 months were collected by the questionnaire at 12 months from baseline.

The process of RTW (or receiving disability pension) is often complex with several transitions between work and different benefits [25]. The participants in the study were deliberately transferred from sickness benefits to unemployment compensation after baseline for a period of three months. To describe a broader concept of RTW, including having increased employability due to the transfer to unemployment compensation, the variable Return To Work or System position Change (RTWSC) was launched. The measure captured how close or far from RTW or employability a person was based on how they received their reimbursement, i.e. wages from an employer, unemployment compensation from SPES or sickness benefits from SSIA. RTWSC was a composite measure based on reimbursement change between baseline and 12-months follow-up and the criteria were applied in a hierarchical order. The RTWSC approach yielded four possible outcomes. “*Increased work*” implied starting to receive income from work or getting an increased percentage of wages among those who already were wage-earners at baseline regardless of unemployment compensation or sickness benefits. Everyone in this category either lost or had reduced sickness benefits. “*Increased employability*” implied that they received unemployment compensation from SPES or an increased percentage of unemployment compensation replacing the reduced sickness benefits from SSIA as compared to baseline but they had no change in income from work. “*Unchanged*” implied no change in reimbursement at 12 months regarding sickness benefits from SSIA, unemployment compensation from SPES or wages from an employer compared with baseline conditions. “*Decreased work and employability*” implied decreased wages, decreased unemployment compensation or change in sickness benefits without compensation from SPES or wages. The data was analysed in multinomial regression models with four outcomes with unchanged as the reference category. The RTWSC

outcome was also dichotomised by merging “decreased work or employability” and “unchanged” and merging “increased employability” and “increased work”

Other independent variables believed to be associated with the outcome were included in the regression models and treated as confounders in the analyses. Age was categorised into young adult (20–34 years), middle-aged adult (35–59 years) and older adult (60–64 years). Employment was assessed as having an employer or not. Part-time work at baseline was reported by the participants on the 12 month questionnaire. Sick leave duration was measured in years, based on register data from the SSIA. Self-rated health was measured by the single question, “In general, how do you perceive your health?” answered on a five-point Likert scale ranging from “very poor”(1) to “very good”(5). This question has been extensively used and validated [26, 27]. The degree of depressive mood and anxiety was measured with the Hospital Anxiety and Depression Scale (HADS). The two subscales of HADS consist of seven items that are answered on a four-point Likert scale and summarised, giving 0–21 points. Scores of 11 or more indicate probable depression or anxiety [28]. Self-efficacy was measured using the General Self-Efficacy Scale (GSE) consisting of ten questions with responses on four-point Likert scales and summarised, giving 10–40 points [29, 30, 31]. Pain was measured at baseline with one question from the Örebro Musculoskeletal Pain Screening Questionnaire (ÖMPSQ): “How much pain have you had, on average, the last three months?” and was answered on a 0–10 point scale from “no pain” to “unbearable pain” [32].

Statistical methods

Associations between the main exposure (motivation) and the outcome (RTWSC) were investigated in logistic and multinomial regression models. A directed acyclic graph (DAG) was used to choose a subset of covariates to be included in the statistical analysis in order to minimise bias [33, 34, 35, 36]. In accordance with our DAG suggestion, we chose to include age, employment, part-time work at baseline, sick leave duration, self-rated health, HADS depression, HADS anxiety, self-efficacy and pain in the logistic and multinomial regression models to analyse the effect of motivation on RTW.

The full DAG is available as a supplement. Results from regression analyses were presented as odds ratios (OR) with 95% confidence intervals. All tests were two-sided and a level of $p < 0.05$ was considered statistically significant.

The impact of missing data from all included participants in the intervention studies ($n=427$) as compared to the participants in this study having complete data on motivation at baseline and RTWSC ($n=227$) was analysed by between-group differences in baseline characteristics between all included participants and participants having complete data using t-tests for continuous data, Mann-Whitney U for ordinal data and for data not normally distributed, and chi-square tests for nominal data. In addition, sensitivity analysis was performed using “worst case” analyses whereby all missing data among participants ($n=427$) in the dichotomised outcome were set to either 0 (decreased work or employability and unchanged) or 1 (increased employability and increased work), in order to avoid favouring a false positive finding in the logistic regression analysis. The statistical analyses were performed using SPSS statistics (IBM Corp, Armonk, New York), version 21.0.

Ethical approval

All participants provided written informed consent to participation prior to the start of the study. The study was approved by the Regional Ethics Committee Uppsala Sweden (Dnr 2010/088 and 2010/088/1).

Results

Participants

The average age of the participants (n=227) was 48.8 years (SD 8.2). The participants consisted of 93.8% (n=213) women and 6.2% (n=14) men. Most participants, 67.8% (n=154), had an employer, and 39.6% (n=90) had an income from work at baseline in addition to receiving partial sick benefits from SSIA. The average sick leave time was 7.9 years (SD 3.2). Baseline characteristics of the participants are shown in table 1. The participants who were motivated for RTW had similar baseline characteristics compared to the less or not motivated participants but the motivated had higher activity level according to ÖMSPQ and less depression and anxiety according to HADS (table 1).

Insert table 1 about here

Missing data analysis

An analysis of the impact of missing data from the originally included participants in the intervention studies (n=427) as compared to the participants in this study having complete data on motivation at baseline and RTWSC (n=227) showed that the questions on motivation and reimbursement to a lesser extent were answered by participants not born in Sweden, being unemployed or scoring more pain.

Main results

After 12 months, the proportion reporting an income from work had increased from 39.6 % to 43.6% (n=99). The proportion of participants having “increased employability” or “increased work” was higher among the participants categorised as being motivated to RTW (50.4%) as compared to those less or not motivated (35.0%) (table 2).

Insert table 2 about here

Participants categorised as being motivated to RTW had more than two-fold odds of reporting “increased employability” or “increased work” in the adjusted logistic regression model OR 2.44 (95% CI 1.25–4.78) (table 3).

Insert table 3 about here

When performing an analysis of the participants in intervention group the OR increased to 2.83 (95% CI 1.23–6.51) and in the control group decreased to 2.01 (95% CI 0.48–8.50).

In the multinomial adjusted regression models with “unchanged” as the reference category, the participants categorised as being motivated to RTW had comparable ORs: “increased employability” OR 3.08 (95% CI 1.24–7.63) and “increased work” OR 1.58 (95% CI 0.67–3.75) (table 4).

Insert table 4 about here

In the sensitivity analyses, OR for the participants categorised as being motivated to RTW decreased from 2.19 to 1.52 (95% CI 0.81–2.84) if missing data in outcome was replaced with 0 (decreased work and employability and unchanged), or if missing data in outcome was replaced with 1 (increased employability and increased work) OR 1.93 (95% CI 1.04–3.58).

Discussion

The results of this study suggest that there was an association between motivation for RTW and RTW or increased employability among people on long-term sick leave.

Interpretation of the results

The results indicate that motivation for RTW might be of importance in vocational rehabilitation. Studies of the importance of motivation for RTW are scarce, but some studies have shown results

suggesting that motivation for RTW is of importance [1, 37]. One study found that wanting to RTW was connected to one's view of his or her own possibility of getting and managing a job that he or she wanted [38]. Promoting work motivation has been indicated as an effective means of preventing long-term sick leave for stress-related illness [6]. Motivation for RTW has, in one study, been suggested as difficult to influence [7]. When planning the rehabilitation process there is a need to sort out factors that may hide a client's perceived weak motivation [4]. Having meaningful job content and work tasks, which one could do satisfactorily according to one's own norms and compared to colleagues, has been suggested as important to increase motivation for RTW [3]. Relationships in terms of cooperation with colleagues have also been found an important motivating factor for RTW [3].

RTW is usually the goal of a vocational rehabilitation, but in people with very long-time sick leave few can be expected to RTW. Furthermore, RTW is a rough measure that does not capture more subtle changes in, for example, perceived work ability, and intentions and actions moving towards RTW. People on sick leave seldom change between two exclusive sources of reimbursements, i.e. from full-time sick leave to full-time work, when exiting from vocational rehabilitation. More often, the reimbursements come from several sources, i.e. Social Welfare Office or Public Employment Service, and consist of several part-time reimbursements [25]. A person can have multiple transitions between work and various reimbursements in a rehabilitation process [25]. RTWSC was launched as a more comprehensive view of the outcome of an intervention than RTW, which also includes increased/decreased employability. The definition of employability according to Cambridge dictionaries is "the skills and abilities that allow you to be employed" [39]. In this study, increased employability was defined as being closer to the labour market by remaining on unemployment benefits from SPES at 12 months instead of going back to sickness benefits.

In this study "increased employability" was merged with "increased work" in the logistic regression model because all participants had the possibility of receiving reintroduced sickness benefits after the

three-month evaluation period of working capacity at SPES if their physician certified that they still had work impairment due to a medical diagnosis. In addition, we regard receiving reimbursement from SPES as a step closer to the labour market and increased employability as all participants had been assessed regarding their work capacity at SPES. In the first year after the introduction of the time limit in sickness insurance, 60% returned to sick leave within 15 months and in 2012 the proportion increased to 75% [40]. The reason for the categorisation of age in three categories was that younger people with long sickness absence may have a complex medical history. Elderly people on long-term sick leave may have age-related disorders and diseases that adversely affect work capacity. In addition, motivation for RTW may decrease with time on sick leave and when approaching retirement age [41, 42, 43].

The OR for motivation for RTW was in this study higher than OR for other known predictors of RTW such as age, employment, sick leave duration, self-rated health, depression and self-efficacy [42, 44, 45, 46, 47]. Vocational rehabilitation efforts have sometimes shown effects on RTW in studies, and in other studies, no effect has been shown and in some cases, even negative effects. Compared to the changes in sickness rates that have occurred in Sweden and some other countries in Europe over the years, the effect of vocational rehabilitation has been small [14, 19, 20, 48, 49, 50, 51, 52, 53]. The effect of interventions on symptom levels is often more successful than the effect on RTW [19]. Most of the participants, like other individuals on long-time sick leave, had been subjected to a range of actions earlier in their sick leave period, which aimed to RTW [54]. The sometimes-poor effect on RTW of vocational rehabilitation efforts may in part be due to insufficient consideration of motivation for RTW.

Taking into account that the participants had very long-term sick leave, a large proportion responded that they were motivated to RTW. There is no information on motivation for those who declined participation in the study. They might have been less motivated for RTW than the participants in the

study. The participants were forced by the new law to end their sick leave, which may have affected how they responded to the question of motivation at baseline. Having a job to go back to when sick benefits ends seems advantageous, but could also be negative if it causes a “lock-in effect”; i.e. when the working conditions contribute to sickness absence and the person should rather change the workplace than return to the workplace. Almost half (49.6%) of those categorised as being motivated for RTW had the outcome “decreased work or employability” or “unchanged”. This can possibly be explained by the preceding very long sick leave duration and medical causes.

Strengths and limitations

This study provided a unique study setting by including a large group of participants having a very long duration of sick leave (7.9 years) prior to losing their sickness benefits. To the best of our knowledge, no similar group with a very long sick leave duration has been studied before. There is also a lack of studies that examine the importance of motivation in a vocational rehabilitation perspective. Using the DAG approach was an important means to minimise the risk of bias. Still, unmeasured confounding probably remains and there is a need to be cautious with regard to causal interpretations.

One weakness was that the large proportion of eligible persons who chose to not participate, which may have caused a selection bias, included more motivated people. On the other hand, it is also possible that the most motivated people chose not to participate as they judged themselves not in need of help. Missing outcome information could be because less or not motivated people answered the 12-month questionnaire to a lesser extent. The questionnaires were extensive and not always simple to answer unambiguously, which may have contributed to the drop out. Another limitation was that measurements based on self-reported data, which were collected by questionnaire 12 months after baseline, possibly introduced recall bias. It was also a limitation that the net increase of the number of

participants that worked at the 12-month follow up in this study was too small (n=9) to be analysed separately.

The sample consisted mainly of women. This study was conducted in an exceptional context where people on very long sick leave were about to lose sickness benefits due to a political decision to introduce a time limit in the sickness insurance; this might have affected motivation for RTW. The large proportion of persons on part-time sick leave and part-time work (39.6%) may have affected the results of the study. The proportion of persons on part-time sick leave and part-time work among persons eligible for the intervention studies (n=1331) but not included was not known. Being on part-time sick leave and part-time work can facilitate work rehabilitation compared to being on full-time sick leave with no contact with the workplace. However, in this group of people who had been on sick leave for a long time and had undergone extensive rehabilitation efforts, part-time work could be the correct level of work ability.

To measure motivation with a single question could be questioned. From what we know, the question on motivation has not been validated with regard to the population or in any other context, but there is support for using single item questions in studies [55, 56].

Generalisability

The participants in this specific study were highly selected and had on average a history of a very long sick leave, but despite this, a large proportion still had part-time work, and they were all obliged to lose their sickness benefits. Therefore, the results should be interpreted with caution for other contexts.

Conclusions

This study suggest that having motivation for RTW, prior to attending vocational rehabilitation, increases the chance of actual RTW or increased employability. The concept of motivation according to SDT has empirical support from studies in work motivation research, as well as in other research fields such as healthcare and education [10, 11, 57]. A poor effect on RTW of previously vocational rehabilitation efforts may in part be due to insufficient consideration of basic psychological needs relating to competence, autonomy and relatedness according to SDT [11, 13, 57]. The results suggest that methods to assess and strengthen motivation for RTW should be developed and evaluated as a means to increase chances of RTW in vocational rehabilitation programmes.

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Declaration of interest statement

The authors report no conflicting interests in relation to this paper.

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Figure 1. Flow chart of recruitment process of the study sample.

Figure 2. Flow chart illustrating time points of participant enrolment and assessments in relation to rehabilitation procedures. (SWO=Social Welfare Office, SSIA=Swedish Social Insurance Agency, SPES=Swedish Public Employment Service.)

Table 1. Baseline characteristics of participants who responded to the question of motivation for RTW and the question of reimbursement/wage (n=227)

	Motivated (n=127) % (n)	Less or not motivated (n=100) % (n)
Age category		
20-34	6 (8)	4 (4)
35-59	88 (111)	84 (84)
60-65	6 (8)	12 (12)
Sex		
Female	95 (121)	92 (92)
Male	5 (6)	8 (8)
Diagnose		
Mental disorder	29 (37)	30 (30)
Pain	45 (57)	39 (39)
Mental disorder+Pain	26 (33)	31 (31)
Employment		
Employed	68 (87)	67 (67)
Unemployed	32 (40)	33 (33)
Sick leave duration years		
Mean (SD) Min-max	7.8 (3.3) 1.7-16.9	8.0 (3.2) 2.4-13.8
Part-time work at baseline	41 (52)	38 (38)
Country of birth		
Sweden	80 (102)	84 (84)
Other than Sweden	20 (25)	15 (15)
Education		
Elementary school	15 (17)	17 (17)
High school	51 (57)	46 (46)
University	34 (38)	26 (26)
Intervention or control group		
Intervention	63 (80)	65 (65)
Control	37 (47)	35 (35)
	Median, (IQR) Min-max	Median, (IQR) Min-max
Activity according to ÖMSQP (0-50)	28 (15-39) 0-50	21 (12-32) 0-50
Self-rated health (1-5)	2 (2-3) 1-5	2 (2-3) 1-4
HADS depression subscale (0-21)	7 (4-11) 1-19	10 (8-13) 1-20
HADS anxiety subscale (0-21)	9 (6-13.5) 0-20	12 (8-15) 1-21
GSE Self-efficacy (10-40)	24.5 (20-30) 11-40	22 (17-26) 9-38
Pain during previous 3 month (0-10)	6 (5-7) 0-10	6 (5-7) 2-10

RTW=Return to work, SD=standard deviation, IQR= inter quartile range, ÖMPSQ=Örebro Musculoskeletal Pain Screening Questionnaire, HADS= The Hospital Anxiety and Depression Scale, GSE=General Self-efficacy scale.

Table 2. Main outcomes by motivation for RTW. (n=227)

	Decreased work and employability	Unchanged	Increased employability	Increased work	Total
	% (n)	% (n)	% (n)	% (n)	(n)
Motivated	11.8 (15)	37.8 (48)	27.6 (35)	22.8 (29)	127
Less or not motivated	17.0 (17)	48.0 (48)	16.0 (16)	19.0 (19)	100

RTW=Return to work

Table 3. Odds ratio (OR) and 95% confidence intervals (CI) for RTWSC¹ dichotomised among Swedish men and women aged 20-64 who were obliged to leave sickness insurance after on average 7.9 years of sickness benefits by motivation for RTW and confounders suggested for the association between motivation for RTW and RTWSC dichotomised. (n=199).

		RTWSC dichotomised	
		Crude OR (95% CI)	Adjusted ² OR (95% CI)
Motivation for RTW	No	1.00	1.00
	Yes	1.89* (1.10-3.23)	2.44* (1.25-4.78)
Age Category	20-34	1.00	1.00
	35-59	0.30* (0.09-0.98)	0.45 (0.09-2.30)
	60-64	0.24* (0.58-1.00)	0.50 (0.07-3.42)
Employment	Yes	1.00	1.00
	No	1.12 (0.66-1.90)	0.88 (0.43-1.80)
Part-time work at baseline	Yes	1.00	1.00
	No	2.08* (1.23-3.53)	2.13* (1.04-4.36)
Sick leave duration	Years	0.96 (0.88-1.04)	0.94 (0.85-1.04)
Self-rated health	Good	1.00	1.00
	Poor	0.76 (0.44-1.30)	0.73 (0.37-1.48)
HADS depression	Unlikely	1.00	1.00
	Possible	1.12 (0.58-2.19)	1.14 (0.44-2.95)
	Probable	0.96 (0.54-1.72)	0.67 (0.26-1.69)
HADS Anxiety	Unlikely	1.00	1.00
	Possible	2.02 (0.97-4.23)	2.27 (0.88-5.85)
	Probable	1.65 (0.87-3.12)	1.71 (0.65-4.52)
GSE Self-efficacy	Strong	1.00	1.00
	Moderate	1.63 (0.84-3.17)	1.38 (0.56-3.38)
	Low	1.71 (0.78-3.76)	2.17 (0.66-7.10)
Pain	Mild	1.00	1.00
	Moderate	0.42 (0.10-1.77)	0.71 (0.14-3.63)
	Severe	0.28 (0.07-1.19)	0.43 (0.08-2.27)

¹ RTWSC=Return to work or system position change² Adjusted for age category, employment, part-time work at baseline, sick leave duration, self-rated health, depression, anxiety, self-efficacy and pain.

HADS= The Hospital anxiety and depression scale; GSE= General Self-efficacy Scale;

*= $p < 0.05$

Table 4. Odds ratio (OR) and 95% confidence intervals (CI) for RTWSC¹ among Swedish men and women aged 20-64 who were obliged to leave sickness insurance after on average 7.9 years of sickness benefits by motivation for RTW and confounders suggested for the association between motivation for RTW and RTWSC. (n=199).

		RTWSC											
		Decreased work and employability				Un- changed	Increased employability				Increased work		
		Crude OR (95% CI)		Adjusted ² OR (95% CI)			Crude OR (95% CI)		Adjusted ² OR (95% CI)		Crude OR (95% CI)		Adjusted ² OR (95% CI)
Motivation for RTW	No	1.00		1.00		1.00	1.00		1.00		1.00		1.00
	Yes	0.88	(0.40-1.97)	0.57	(0.20-1.68)	1.00	2.19*	(1.07-4.47)	3.08*	(1.24-7.63)	1.53	(0.76-3.08)	1.58 (0.67-3.75)
Age Category	20-34	1.00		1.00		1.00	1.00		1.00		1.00		1.00
	35-59	0.09*	(0.01-0.86)	0.11	(0.01-1.61)	1.00	0.08*	(0.01-0.66)	0.23	(0.02-2.86)	0.12	(0.01-1.09)	0.20 (0.02-2.44)
	60-64	0.17	(0.01-2.04)	0.19	(0.01-3.92)	1.00	0.10	(0.01-1.04)	0.51	(0.03-8.90)	0.07*	(0.01-0.95)	0.15 (0.01-2.91)
Employment	Yes	1.00		1.00		1.00	1.00		1.00		1.00		1.00
	No	0.52	(0.20-1.30)	1.09	(0.33-3.62)	1.00	1.40	(0.72-2.70)	1.01	(0.41-2.48)	0.62	(0.30-1.31)	0.76 (0.30-1.97)
Part-time work at baseline	Yes	1.00		1.00		1.00	1.00		1.00		1.00		1.00
	No	0.23*	(0.10-0.54)	0.24*	(0.08-0.76)	1.00	2.56*	(1.19-5.49)	3.34*	(1.15-9.70)	0.93	(0.48-1.83)	0.87 (0.36-2.12)
Sick leave duration	Years	0.95	(0.84-1.08)	0.92	(0.78-1.09)	1.00	0.96	(0.87-1.06)	0.94	(0.83-1.07)	0.93	(0.84-1.03)	0.91 (0.80-1.04)
Self-rated health	Good	1.00		1.00		1.00	1.00		1.00		1.00		1.00
	Poor	0.54	(0.24-1.21)	0.52	(0.18-1.50)	1.00	0.81	(0.40-1.65)	0.86	(0.33-2.22)	0.51	(0.25-1.04)	0.48 (0.20-1.15)
HADS depression	Unlikely	1.00		1.00		1.00	1.00		1.00		1.00		1.00
	Possible	0.95	(0.34-2.71)	1.80	(0.39-8.34)	1.00	1.15	(0.47-2.77)	1.52	(0.44-5.27)	1.08	(0.46-2.53)	1.13 (0.33-3.84)
	Probable	0.85	(0.34-2.09)	2.13	(0.45-10.05)	1.00	1.18	(0.56-2.50)	0.80	(0.24-2.68)	0.70	(0.32-1.54)	0.83 (0.25-2.77)
Anxiety	Unlikely	1.00		1.00		1.00	1.00		1.00		1.00		1.00
	Possible	0.58	(0.20-1.68)	0.40	(0.10-1.62)	1.00	2.48	(0.89-6.90)	2.80	(0.72-10.82)	1.24	(0.47-3.23)	1.13 (0.35-3.72)
	Probable	0.32*	(0.12-0.8)	0.23*	(0.05-0.99)	1.00	1.77	(0.71-4.40)	1.58	(0.39-6.39)	0.91	(0.40-2.06)	0.95 (0.28-3.22)
GSE Self-efficacy	Strong	1.00		1.00		1.00	1.00		1.00		1.00		1.00
	Moderate	0.67	(0.27-1.66)	0.50	(0.14-1.86)	1.00	1.62	(0.65-4.06)	1.22	(0.36-4.12)	1.34	(0.57-3.18)	1.12 (0.36-3.48)
	Low	0.49	(0.15-1.64)	0.63	(0.09-4.29)	1.00	1.90	(0.67-5.37)	2.10	(0.46-9.60)	1.09	(0.38-3.09)	1.59 (0.34-7.39)
Pain	Mild	1.00		1.00		1.00	1.00		1.00		1.00		1.00
	Moderate	0.72	(0.06-8.50)	1.08	(0.06-20.14)	1.00	1.19	(0.10-13.75)	2.46	(0.18-33.12)	0.22	(0.04-1.22)	0.35 (0.05-2.44)
	Severe	0.39	(0.03-4.75)	0.79	(0.04-15.68)	1.00	0.71	(0.06-8.26)	1.17	(0.08-16.31)	0.13*	(0.02-0.71)	0.27 (0.04-1.93)

¹ RTWSC=Return to work or system position change

² Adjusted for age category, employment, part-time work at baseline, sick leave duration, self-rated health, depression, anxiety, self-efficacy and pain.

HADS= The Hospital anxiety and depression scale; GSE= General Self-efficacy Scale;

*= p<0.05

DAG-model supplement.